

Serial No. 09/237,229

providing a plurality of processing chambers aligned with the transfer path; and loading and unloading the wafers stacked on the cassette stage to and from the plurality of processing chambers using a transfer mechanism installed in the transfer path.

34. The method of manufacturing semiconductor devices according to claim 33, wherein said providing comprises installing the processing chambers in multiple layers.

35. The method of manufacturing semiconductor devices according to claim 33, wherein each processing chamber has a gate formed on a side away from the transfer path, said loading and unloading comprises selectively opening and closing a corresponding gate to allow passage of wafers to a processing chamber.

36. The method of manufacturing semiconductor devices according to claim 33, further comprising providing a load lock chamber connected to one side of the processing chambers, the load lock chamber serving as a stand-by area for the wafers.

37. The method of manufacturing semiconductor devices according to claim 36, further comprising:

transferring wafers from the transfer mechanism to the processing chambers using a transfer arm disposed in the load lock chamber,

Serial No. 09/237,229

the load lock chamber including an inner transfer device for moving the transfer arm and gates respectively formed on a side of the transfer path and a side of the processing chambers,

the method further comprising selectively opening and closing the gates to allow passage of the wafers.

38. The method of manufacturing semiconductor devices according to claim 37, wherein the transfer arm includes a plurality of transfer arms, said transferring comprising transferring a plurality of wafers using the plurality of transfer arms.

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39. The method of manufacturing semiconductor devices according to claim 36, further comprising maintaining the load lock chamber at a vacuum pressure.

40. The method of manufacturing semiconductor devices according to claim 36, wherein said providing a load lock chamber comprises providing one common load lock chamber for the plurality of processing chambers.

41. The method of manufacturing semiconductor devices according to claim 33, wherein the processing chambers are connected by gates, the method further comprising directly moving wafers after a process in one processing chamber to another processing chamber for a subsequent process.

Serial No. 09/237,229

42. The method of manufacturing semiconductor devices according to claim 33, further comprising maintaining the processing chambers at a vacuum pressure.

43. The method of manufacturing semiconductor devices according to claim 33, wherein said loading and unloading comprises:

selectively holding the wafers on a transfer arm; and

loading and unloading the wafers into the processing chambers by moving the transfer arm,

the transfer arm being moved horizontally by a transfer robot in accordance with control signals applied to the transfer robot.

44. The method of manufacturing semiconductor devices according to claim 43, wherein said loading and unloading further comprises moving the transfer robot vertically in accordance with the control signals.

45. The method of manufacturing semiconductor devices according to claim 43, wherein said loading and unloading comprises vacuum-absorbing the wafers to the transfer arm using a vacuum line.

46. The method of manufacturing semiconductor devices according to claim 43, wherein the transfer arm includes a plurality of transfer arms, said loading and

Serial No. 09/237,229

unloading comprises simultaneously transferring a plurality of wafers using the plurality of transfer arms.

47. The method of manufacturing semiconductor devices according to claim 43, wherein said loading and unloading comprises moving the transfer arm horizontally using a motor or a pneumatic cylinder.

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48. The method of manufacturing semiconductor devices according to claim 43, wherein said loading and unloading comprising moving the transfer arm vertically using a motor or a pneumatic cylinder.

49. The method of manufacturing semiconductor devices according to claim 33, wherein the transfer path has extended length and includes a plurality of the transfer mechanisms, said loading and unloading comprises transferring the wafers from one transfer mechanism to another transfer mechanism.

50. The method of manufacturing semiconductor devices according to claim 33, wherein said loading and unloading comprises transferring unprocessed wafers from a cassette mounted on a first cassette stage to one of the processing chambers and transferring processed wafers from another of the processing chambers to a second cassette stage which is located such that the wafers are easily transferred to a

Serial No. 09/237,229

subsequent process.

51. The method of manufacturing semiconductor devices of claim 33, wherein the transfer path has a rectangular shape.

52. A method of manufacturing semiconductor devices in a multi-chamber system of an etching facility, comprising:

mounting on a cassette stage a cassette that has wafers stacked thereon;

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maintaining a transfer path that is adjacent to the cassette stage at atmospheric pressure, that transfer path providing space for transportation of wafers and having a width slightly larger than a diameter of the wafers;

providing a plurality of processing chambers aligned in a plurality of layers parallel to and beside the transfer path; and

loading and unloading the wafers stacked on the cassette stage to and from the plurality of processing chambers with vertical/horizontal reciprocal movement using a transfer mechanism installed in the transfer path.

53. The method of manufacturing semiconductor devices according to claim 52, wherein the transfer path has a rectangular shape.

54. The method of manufacturing semiconductor devices according to claim 52,

Serial No. 09/237,229

wherein said providing comprises providing the processing chambers in a plurality of layers comprising 2 to 5 layers.

55. The method of manufacturing semiconductor devices according to claim 52, further comprising providing a load lock chamber connected to one side of the processing chambers, the load lock chamber serving as a stand-by area for the wafers.

56. The method of manufacturing semiconductor devices according to claim 55, further comprising:

transferring wafers from the transfer mechanism to the processing chambers using a transfer arm disposed in the load lock chamber,

the load lock chamber including an inner transfer device for moving the transfer arm and gates respectively formed on a side of the transfer path and a side of the processing chambers,

the method further comprising selectively opening and closing the gates to allow passage of the wafers.

57. The method of manufacturing semiconductor devices according to claim 56, wherein the transfer arm includes a plurality of transfer arms, said transferring comprising simultaneously transferring a plurality of wafers using the plurality of transfer arms.

Serial No. 09/237,229

58. The method of manufacturing semiconductor devices according to claim 52, wherein the transfer mechanism includes a transfer arm, said loading and unloading comprising:

selectively vacuum-absorbing the wafers to the transfer arm using a vacuum line;

and

loading and unloading the wafers into the processing chambers by moving the transfer arm,

the transfer arm being moved horizontally and vertically by a transfer robot in accordance with control signals applied to the transfer robot.

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59. The method of manufacturing semiconductor devices according to claim 58, wherein the transfer arm comprises a plurality of the transfer arms, said loading and unloading comprising simultaneously transferring a plurality of wafers using the plurality of transfer arms.

60. The method of manufacturing semiconductor devices according to claim 58, wherein said loading and unloading comprises moving the transfer arm vertically and horizontally using a motor or a pneumatic cylinder.

61. The method of manufacturing semiconductor devices according to claim 52, wherein the transfer path has extended length and includes a plurality of transfer

Serial No. 09/237,229

mechanisms, said loading and unloading comprising transferring the wafers from one transfer mechanism to another transfer mechanism.

62. The method of manufacturing semiconductor devices according to claim 52, wherein said loading and unloading comprises transferring unprocessed wafers from a cassette mounted on a first cassette stage to one of the processing chambers and transferring processed wafers from another of the processing chambers to a second cassette stage which is located such that the wafers are easily transferred to a subsequent process.

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63. The method of manufacturing semiconductor devices according to claim 52, wherein said providing comprises providing to processing chambers arranged in multi-layers,

the method further comprising mounting on an additional cassette stage a cassette that has processed wafers stacked thereon.

64. A method of manufacturing semiconductor devices in a multi-chamber system of an etching facility, comprising:

mounting on a cassette stage a cassette that has wafers stacked thereon;

maintaining a transfer path without a vacuum, the transfer path being provided as adjacent to the cassette stage and as providing space for transportation of wafers;

Serial No. 09/237,229

providing a plurality of processing chambers aligned with the transfer path; and loading and unloading the wafers stacked on the cassette stage to and from the plurality of processing chambers using a transfer mechanism in the multi-chamber system.

65. The method of manufacturing semiconductor devices according to claim 64, further comprising providing a load lock chamber connected to one side of the processing chambers.

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67. The method of manufacturing semiconductor devices according to claim 64, further comprising maintaining the processing chambers at vacuum pressure.

68. The method of manufacturing semiconductor devices according to claim 64, wherein said loading and unloading comprises transferring the wafers by vacuum-absorbing the wafers to a transfer arm using a vacuum line.

Remarks

Claims 1-68 are pending in the present application. Claims 33-68 have been